

SN 10/700,859

For information purposes only
Union of Soviet Socialist Republics



USSR State Committee for Inventions and Discoveries

5 SPECIFICATION OF AN INVENTION
FOR AN INVENTOR'S CERTIFICATE

(11) 654650

(51) Int. Cl.² C 08 L 75/08

C 08 K 5/05

10 C 08 K 5/36

C 08 K 5/09

(53) UDC 678.4(088.8)

(61) Additional to Inventor's Certificate -

15 (22) Filed 13.12.76 (21) 2430291/23-05

with incorporation of application No. 2428964/05

2430290/05

(23) Priority -

Published 30.03.79. Bulletin No. 12

20 Date specification published 02.04.79

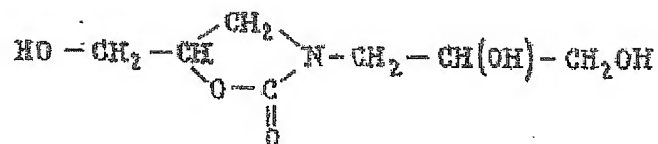
(72) Inventors A.V. Golubev, G.S. Maslyuk, V.I. Stadnik, K.I. Matkovskiy, B.I. Kurlyuchenko, L.K. Khodzhemirova, I.M. Fialkova and S.G. Voloshina

(71) Applicant Kievskiy Tekhnologicheskii Institut
25 Legkoy Promyshlennosti i Nauchno-Issledovatel'skiy
Institut Rezinovykh i Lateksnykh Izdeliy

(54) POLYURETHANE LATEX

30 The invention relates to the rubber industry, and in particular to the field of manufacture of latex compositions used to obtain films and coatings possessing high vapour permeability and strength properties.

35



or a polyglycol, and, as an emulsifier, a surfactant selected from the group of the sodium salt of an alkylarylsulphonic acid and sodium oleate, the components of the latex being taken in the following amounts, wt. %:

	Prepolymer	19-35
	Emulsifier	1-3
	Chain extender	0.5-5
10	Water	Remainder

Example 1. The preparation of latex is performed in the following manner.

20-35 g of prepolymer (product obtained from 1 mole of polyfurite and 2 moles) of TDI (SKU-PFL) are dissolved in 75-65 ml of ethyl acetate (solution A). 75-65 ml of a 1-5% solution (solution B) of sodium oleate are placed in a chemical beaker. Solution B is cooled to +5°C and solution A is poured in while stirring vigorously, after which stirring is continued for a further 5-15 min. After distilling off the ethyl acetate, a latex with a dry residue content of 25-50% is obtained.

Table 1 shows the composition of the polyurethane latex, and Table 2 the properties of films based on it.

Ingredients	Table 1 Number of proposed latex		
	1	2	3
Polyurethane prepolymer with terminal isocyanate groups, obtained from 1 mole of polyfurite with mol. wt. 1000 and 2 moles of 2,4-toluylene-diisocyanate, wt. %	20	30	35
Water, wt. %	79	68	62
Sodium oleate emulsifier, wt. %	1	2	3

Table 3

Ingredients	Number of latex now proposed								
	1	2	3	4	5	6	7	8	9
Polyurethane prepolymer with terminal isocyanate groups, obtained by reaction of macrodiisocyanate SKU-PFL and polyoxypropylene glycol with mol. wt. of 900, wt.%	19	25	35	-	-	-	-	-	-
Polyurethane prepolymer with terminal isocyanate groups, obtained by reaction of macrodiisocyanate SKU-PFL and polyoxypropylene glycol with mol. wt. of 1000, wt.%	-	-	-	19	25	35	-	-	-
Polyurethane prepolymer with terminal isocyanate groups, obtained by reaction of macrodiisocyanate SKU-PFL and polyoxypropylene glycol with mol. wt. of 1500, wt.%	-	-	-	-	-	-	19	25	35
Water, wt.%	79.5	71	58	79.5	71	58	79.5	71	58
Emulsifier - sodium salt of alkylarylsulphonic acid, wt.%	1	1.5	2	1	1.5	2	1	1.5	2
Triol chain extender, wt.%	0.5	2.5	5	0.5	2.5	5	0.5	2.5	5

Note: Ratio of ingredients

Table 4

Characteristic	Known latex	Number of latex now proposed								
		1	2	3	4	5	6	7	8	9
Vapour permeability, mg/cm ² .h	0.0203	0.30	0.47	0.58	0.29	0.43	0.59	0.35	0.4	0.56

solution of the mixture of prepolymers is added with vigorous agitation by a stirrer operating at 16000 rev/min. Dispersion is continued for 5 min. and, after distilling off the solvent, a latex with a dry residue
5 content of 37-45% is obtained.

The formulations of the polyurethane latex in accordance with Example 3 (Table 5) and the results of physico-mechanical tests on free films obtained from
10 these (Table 6) are given below.

Table 6

Composition number	Tensile strength, kg/cm ²	Relative elongation, %
Known polyurethane latex	176	440
1	375	530
2	440	512
3	310	565
4	340	520
5	400	500
6	320	580
7	380	560
8	450	500
9	300	575
10	247	527
11	241	560
12	242	597
13	200	520
14	186	580
15	200	620
16	241	500
17	220	560
18	210	600

As can be seen from Table 6, the combined use of two prepolymers when preparing polyurethane latex increases the strength and elasticity of films virtually 1.5-fold, which is extremely important when preparing latex articles; at the same time, the films have high vapour permeability (similar to Examples 1 and 2).

As can be seen from Tables 2, 4 and 6, films of the proposed polyurethane latex are superior to films of the known polyurethane latex by a factor of 15-20 in respect of vapour permeability, together with a simultaneous improvement in strength properties.

Patent claim

Polyurethane latex, consisting of a prepolymer with terminal isocyanate groups, an emulsifier, a chain extender and water, characterized in that, with the object of improving the vapour permeability and strength properties of films of said latex, the latter

Translator's Report/Comments

Your ref: P040581EP

Your order of (date): 12.06.2008

In translating the above text we have noted the following apparent errors/unclear passages:

Page/para/line*	Comment
Col. 4 lines 4-5	Should presumably read '2 moles of TDI (SKU-PFL))'
Col. 4, last para. line 1	'No unit given after '90-150'
Col. 5 line 1	Should presumably read '(0.22 mole) of SKU-PFL'
Note under Table 3	Sic
Col. 8 line 9.	Error in source corrected to read (15 -15 g or 17.5 - 17.5 g)

* This identification refers to the source text. Please note that the first paragraph is taken to be, where relevant, the end portion of a paragraph starting on the preceding page. Where the paragraph is stated, the line number relates to the particular paragraph. Where no paragraph is stated, the line number refers to the page margin line number.

TRC1 1.7.92